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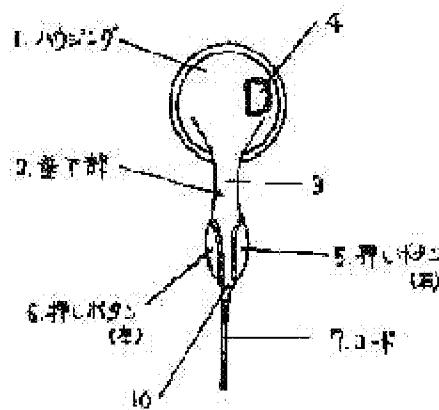
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(54) INNER EAR-TYPE HEADPHONE WITH PUSH KEY

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a headphone having a comfortable operability, which is to easily install by providing a section where push keys are not mounted in right/left parts having specified lengths above a suspension part and mounting right/left push keys which operate independently for at least right/left parts below the section.

SOLUTION: A section where push keys are not mounted for right/left parts with a length of not less than 7 mm is provided above a suspension part. The push keys 5 and 6 are arranged above the suspension part 2, and the suspension part 2 is provided with the lead-out part of a cord 7. At installing the section where the push keys are not mounted for the right/left parts, a headphone can be picked up while a finger does not touch the push keys but can touch the earphone, so that the finger does not touch the push keys at using of the section as a part to support a housing by touching the finger, when pushing the right/left push keys provided above or below the section and move independently.



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2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the inner-ear type headphone which provided the push button on the drooping section.

[0002]

[Description of the Prior Art] Conventionally, as inner-ear type headphone which provided the push button on the drooping section, there are some which are shown in the registered design No. 703060, the registered design No. 886264, and the registered design No. 946289.

[0003] Are not certain in how in these, when pushing a push button at an ear at the time of wearing, for example, housing is supported in addition to maintenance by an ear, The basis of maintenance of housing insufficient for pushing a push button if a result push button is pushed, housing will shift in an ear, or separate from an ear, or according only to an ear, If a push button cannot be pushed well and a drooping section is pinched with a finger in the case of wearing, It cannot shift from the state to the work which changes and operates button ***** which wants to avoid malfunction for two or more push buttons continuously, and there is a fault that it cannot divide two or more operations for every push button since only one is provided, and a push button cannot carry out. The knob of the right and left which there is the feature of touching the knob for operation of a finger simultaneously, and were then provided on the drooping section when the drooping section was pinched with the finger, for example on the occasion of wearing, it can pinch by the thumb and the middle finger from right and left, and can be moved and operated by right-and-left one -- this knob -- each right and left -- separate operation is not carried out.

[0004] Although the portion made so that it might turn behind an ear is not called a drooping section in this specification, there are some etc. which are shown in the open utility model No. 171184 [Showa 55 to], for example as an earphone which provided the push button on the portion made so that it might turn behind an ear.

[0005] Inner-ear type headphone with the portion made so that it might turn behind this ear, or an earphone, Since the field which faced the back side of the ear among the portion contacts the reverse side of an ear or approaches at the time of wearing, a push button and the portion pinched with a finger in the case of wearing cannot be provided in the field, Or even if it provides, in order that an ear may interfere, comfortable operation of the push button cannot be performed at the time of wearing, and it is hard to pinch the portion to pinch. Although the portion to pinch is

pinched in the case of wearing, it is hard to equip an ear comfortably, without having again.

[0006]

[Problem(s) to be Solved by the Invention] This invention removes the above conventional faults and an object of this invention is to obtain the inner-ear type headphone which are truly easy to use.

[0007] In the case of wearing, although a drooping section is pinched with a finger, a finger does not specifically touch a push button, Do not make the push button or other operation switches malfunction them, but again, It can shift to the work which pushes a push button continuously from the state where it pinched with the finger in the case of the wearing, The buttons which divide two or more operations for every push button, can perform them, and want to avoid malfunction in that case. It aims at obtaining the basis of brief composition, and the inner-ear type headphone solved simultaneously for all these technical problems that have a portion which supports housing auxiliary with a finger on a drooping section besides maintenance by an ear, when the finger to push can be dislocated and operated and a push button is pushed at an ear at the time of wearing.

[0008]

[Means for Solving the Problem] To achieve the above objects, in an invention which starts claim 1 among this inventions, providing the section which does not provide any push button in right and left not less than 7 mm in length on a drooping section of housing of inner-ear type headphone -- further -- the bottom of it -- right and left -- it, besides each of every at least one right and left provide a push button which moves independently. In an invention concerning claim 2, a push button in which each of every at least one right and left move to each right and left independently is provided on a drooping section of housing of inner-ear type headphone, and the section which does not provide any push button in right and left not less than 7 mm in length is further established in the bottom of it.

[0009] Here, that the length of the section which does not provide any push button in right and left provided on a push button in which each of every at least one right and left move to each right and left independently, or in the bottom is not less than 7 mm originates in width of a fingertip which touches the thing, when pinching a thing in a common person. That is, although the section which does not provide any push button in right and left in the case of wearing is pinched with a finger, While it is for the ability not to touch a finger at a push button, on the section, Or also when it is used as a portion which supports housing for the section auxiliary when pushing a push button which was provided downward, and in which each of every at least one right and left move to each right and left independently, having applied a finger, it is for the ability not to touch a finger at a push button.

[0010] each right and left -- every at least one right and left -- that its it provides a push button which moves independently, While it is for dividing two or more operations for every push button, and performing them, it is for the buttons which want to avoid malfunction dislocating a finger to push, and operating them by dividing and providing in right and left, in that case.

[0011] Establishing the section which does not provide any push button in right and left on a push button in which each of every at least one right and left move to each right and left independently, or in the bottom, When pushing a push button at the time of wearing while it is for enabling it to shift to work which pushes a push button continuously from the state where it pinched with a finger in the case of wearing, it is for providing a portion which supports housing auxiliary with a finger on a drooping section besides maintenance by an ear. Namely, since there is no portion which housing with which an ear was equipped shifts in an ear, separates from an

ear, or supports housing auxiliary with power in which it is added to housing by pushing a push button, It is for solving a technical problem that a basis of insufficient maintenance of housing only by an ear and a push button cannot be pushed well. Push a push button continuously and it hits supporting housing auxiliary with a finger, Composition which established the section which does not provide any push button in right and left on a push button in which each of every at least one right and left move to each of these right and left independently, or in the bottom mentions later about acting how concretely.

[0012]To the section which does not provide any push button in right and left, and each right and left, and every at least one. That each right and left provide a push button which moves independently on a drooping section of housing of inner-ear type headphone, Although housing of inner-ear type headphone with a drooping section is possessed in the case of the wearing so that the drooping section may generally be pinched by the thumb and the middle finger, and an index finger is sometimes further attached like drawing 11, Inner-ear type headphone of this invention are because it constitutes so that it may act as follows when it uses having made it such, when possessed so that the drooping section may be pinched by the thumb and the middle finger.

[0013]When it can pinch so that the section in which no push button is provided may be inserted into right and left by the thumb and the middle finger in the case of wearing, and also pushing a push button continuously from the state immediately after wearing, A push button can be pushed only by moving one finger which pushes a button, putting the thumb on the same position as having pinched on the occasion of wearing like drawing 12, when pushing a push button by the side of the thumb with the thumb and pushing a push button by the side of the middle finger for the middle finger by the middle finger. Under the present circumstances, since a hand is lifted and it is not necessary to have it again once from housing, it can shift to work which pushes a push button continuously from wearing. By in addition, a thing for which the thumb is put on the section in which no push button is provided at right and left like drawing 12 when pushing this push button, pushing a push button by the side of the thumb with the thumb and pushing a push button by the side of the middle finger for the middle finger by the middle finger. This section functions as a portion which supports housing at the time of pushing a push button auxiliary. Composition of this invention acts as mentioned above.

[0014]

[Embodiment of the Invention]An embodiment of the invention is described with reference to drawings based on an example. In inner-ear type headphone with a drooping section, the invention which starts claim 1 among this inventions can be carried out by arranging the push button 5 and the push button 6 on the drooping section 2, as shown in a figure, as shown in drawing 1 thru/or drawing 4. This example is about the thing of the form where the housing the object for right ears and for left ears is the same. Here, as for 16 mm and the distance b, 8 mm and the distance d of 16 mm and the distance c are [distance a] 9 mm.

[0015]Here, the push button 5 in this example and the push button 6 sink beyond from this side of the perpendicular direction in drawing 2 which is a right side view, respectively, and drawing 3 which is left side views, when it pushes.

[0016]As for the inner-ear type headphone of the example shown in drawing 1 thru/or drawing 4, the drooping section 2 has the derivation part of the code 7. in this example, the switch 8 of the sliding type which are switches other than a push button is formed on the drooping section 2, and it also resembles portions other than a drooping section, and the push button 4 is formed.

[0017]drawing 5 thru/or drawing 6 show another example of the invention which starts claim 1

among this inventions -- the object for one ear -- it is related with the inner-ear type headphone which had two drooping sections per one. This example is about what is a form where the housing the object for right ears and for left ears made the right and left reverse mutually. It can carry out by arranging the push button 14 and the push button 15 on the drooping section 12, as shown in a figure. The drooping section 16 has the derivation part of the code 17, and, as for 12 mm and the distance g, the distance e is [16 mm and distance f / 9 mm and the distance i of 16 mm and the distance h] 5 mm.

[0018]In inner-ear type headphone with a drooping section, the invention which starts claim 2 among this inventions can be carried out by arranging the push button 25 and the push button 26 on the drooping section 22, as shown in a figure, as shown in drawing 7 thru/or drawing 10. This example is about what is a form where the housing the object for right ears and for left ears made the right and left reverse mutually. Here, as for 16 mm and the distance k, 7 mm and the distance m of 16 mm and the distance l are [distance j] 16 mm.

[0019]Here, the push button 25 in this example and the push button 26 sink beyond from this side of the perpendicular direction in drawing 8 which is a right side view, respectively, and drawing 9 which is left side views, when it pushes.

[0020]As for the inner-ear type headphone of the example shown in drawing 7 thru/or drawing 10, the drooping section 22 has the derivation part of the code 27. in this example, the switch 28 of the sliding type which are switches other than a push button is formed on the drooping section 22, and it also resembles portions other than a drooping section, and the push button 24 is formed.

[0021]

[Effect of the Invention]Since this invention is constituted as explained above, it does so an effect which is indicated below. Since the length of the section which does not provide any push button in right and left provided on the push button in which each of every at least one right and left move to each right and left independently, or in the bottom is not less than 7 mm, While the section which does not provide any push button in right and left can be pinched with a finger in the case of wearing so that a finger cannot touch a push button, Also when pushing the push button which was provided on the section or in the bottom and in which each of every at least one right and left move to each right and left independently and it is used as a portion which supports housing for the section auxiliary, having applied the finger, a finger can be applied to a push button so that a finger cannot be touched.

[0022]Since each of every at least one right and left provided the push button which moves independently in each right and left, two or more operations can be divided for every push button, and can be performed, simultaneously in that case, the buttons which want to avoid malfunction are dividing and providing in right and left, and they can dislocate and operate the finger to push.

[0023]Since the section which does not provide any push button in right and left was established on the push button in which each of every at least one right and left move to each right and left independently on a drooping section, or in the bottom, In the case of wearing, it can pinch so that the section in which no push button is provided may be inserted into the right and left on a drooping section by the thumb and the middle finger. When it uses having made it such, the push button immediately after wearing and by the side of the thumb is pushed with the thumb and the push button by the side of the middle finger is pushed for the middle finger by the middle finger, the thumb has been put on the same position as having pinched on the occasion of wearing like drawing 12. Only by moving one finger which pushes a button, a push button can be

continuously pushed from wearing, without lifting a hand and having it again once, from housing. By what the thumb is put on the section in which no push button is provided at right and left for like drawing 12 when pushing this push button, pushing the push button by the side of the thumb with the thumb and pushing the push button by the side of the middle finger for the middle finger by the middle finger. With the power in which it is added to housing by being able to support housing auxiliary and as a result pushing a push button. Since there is no portion which the housing with which the ear was equipped shifts in an ear, separates from an ear, or supports housing auxiliary, it can prevent being unable to push well the basis of maintenance of housing insufficient for pushing the push button only by an ear, and a push button.

[0024]Although the housing of inner-ear type headphone with a drooping section is possessed in the case of the wearing so that the drooping section may generally be pinched by the thumb and the middle finger, and an index finger is attached and makes and is sometimes further possessed like drawing 11, Since it constitutes on the assumption that it is used making it such, like the housing of the conventional common inner-ear type headphone, this invention is pinched so that the drooping section may be pinched by the thumb and the middle finger, or as it attaches an index finger to it, it can use it for it.

[0025]In acquiring the already described effect, there is no unnecessary portion in the composition of this invention, therefore the composition of this invention is rational and brief.

[0026]

[A definition of the words and phrases in this specification] The words and phrases in this specification are defined as follows, in order to clarify the meaning more. First, although a drooping section is defined, in advance of the definition, the temporary back of housing is defined as follows. When you turn the direction with which the diaphragm in housing makes a sound to the front and you look at the diaphragm through a fluoroscope in housing, let direction of housing which appears most widely as for the area of the diaphragm, and this be the temporary backs of housing. Therefore, the direction of the reverse side of the contrary and a jam is a temporary transverse plane of housing. having considered it as a temporary transverse plane and the temporary back here -- the any -- although -- it is because the upper and lower sides do not become settled. After defining the upper and lower sides later, the transverse plane of housing and the back are defined.

[0027]In response to the definition of the temporary transverse plane of this housing, the drooping section of housing is defined as follows. In housing, when the portion which is separated from the center of a diaphragm not less than 15 mm exists, the part most distant from the center of the diaphragm among the portion is recognized to be a tip of the portion for every portion of the. And when the temporary transverse plane of housing is turned here and the center of a diaphragm is connected with a line to the tip, the point which can lap and be seen is recognized. However, when the temporary transverse plane of housing is turned here, this does not lap and is not visible, and the line which actually connected the center of the diaphragm to the tip, and the outline of the outermost part of a diaphragm do not necessarily cross. The part on the outline of the outermost part of the diaphragm looked at through a fluoroscope in housing which laps with the recognized point and is visible in the state where the temporary transverse plane of housing has been turned here continuously is defined as the turning point of a drooping section. In and the state where draw the tangent in the turning point of the drooping section of the outline of the outermost part of a diaphragm, and the transverse plane where housing is still more nearly temporary has been turned here. When the tangent is moved straight this side and beyond, the field made by having moved the tangent straight this side and beyond divides into a

portion including the tip of a portion distant not less than 15 mm from the center of a diaphragm of having recognized housing previously to be the portion which stored the diaphragm, but. A portion including the tip of the portion which is separated from the center of a diaphragm not less than 15 mm divided by that field at this time is defined as a drooping section. When the temporary transverse plane of housing is turned here, the field made by having moved the tangent straight this side and beyond laps with the tangent, and is in sight. Let the tip of the portion which is separated from the center of a diaphragm not less than 15 mm be a tip of the drooping section in a drooping section including the tip.

[0028]However, when the tip of a portion and the center of a diaphragm which turned the temporary transverse plane of housing here and are separated from the center of the diaphragm in housing not less than 15 mm are connected with a line, When the point which can lap and be seen does not exist, About the portion which is separated from the center of the diaphragm not less than 15 mm, it has the definition of the portion called the portion which is separated from the center of a diaphragm not less than 15 mm itself, and the portion is defined as a drooping section.

[0029]However, the portion will not be used as a drooping section, if it is the portion made so that it might turn behind an ear even if it is a portion applicable to either of the definitions of the two above-mentioned drooping sections. Inner-ear type headphone with the portion made so that this might turn behind an ear as above-mentioned, or an earphone, Since the field which faced the back side of the ear among the portion at the time of wearing contacts the reverse side of an ear or approaches, Even if a finger and the portion especially pinched by the thumb and the middle finger cannot be provided in the field in the case of a push button and wearing or it provides, in order that an ear may interfere, comfortable operation of the push button cannot be performed at the time of wearing, and it is hard to pinch the portion to pinch. Although the portion to pinch is pinched in the case of wearing, it is hard to equip an ear comfortably, without having again. As a result, it is because the issue which this invention tends to solve cannot fully be solved.

[0030]In addition, a name called a drooping section was named so for convenience, and the drooping section in this specification has not necessarily turned to the bottom at the time of wearing, and it is not necessarily hanging down.

[0031]Next, "the state where the push button was provided on the drooping section at right and left" is defined. First, although the state where the push button was provided in the right is defined on a drooping section, in advance of it, the transverse plane of housing is defined as follows. The portion which turns housing to a temporary transverse plane based on the definition of the temporary transverse plane of the above-mentioned housing and into which the diaphragm has stored the tip of the drooping section relatively to it just under in the state is turned right above. Thus, when housing is turned, this direction is defined as the transverse plane of housing. Therefore, the direction of the reverse side of the contrary and a jam is the back of housing. The housing with two or more drooping sections will also have two or more results, its transverse planes, and backs in this specification.

[0032]A push button is on a drooping section first about ***** "which provides a push button on a drooping section at the right", The push button on the drooping section appears in the right side view to the transverse plane to which the tip of the drooping section was turned just under, And the migration length from this side in the right lateral which appears in the previous right side view of the push button when the push button is pushed to the other side, From under the right from the left from the right in the right lateral, and the left, and the bottom from a top, from

under [a top and from slant] slant and slant to up to slant, when longer than the migration length of a throat, it is defined as being in ***** "which provides a push button on a drooping section at the right."

[0033]With therefore, ***** "which provides a push button on a drooping section at the left." To the left side view to the transverse plane which there is a push button and turned the tip of the drooping section just under on the drooping section first. When the push button on the drooping section appears and the push button is pushed, From under the right from the left from the right in the left lateral, and the left, and the bottom from a top, from under [a top and from slant] slant and slant to up to slant, the migration length from this side in the left lateral which appears in the previous left side view of the push button to the other side says the state, when longer than the migration length of a throat.

[0034]Although a push button refers to the push button generally said, the push button which cannot be pushed with a finger and which is pushed using a pin etc. is excluded. When the shortest diameter that passes along the shortest diameter of a button, i.e., the center of a button, is 2 mm or less and the button is not specifically pushed, When all of the buttons already sink in the inside of housing or some buttons have not projected out of housing, the button is not called a push button in this specification. The shortest diameter of a button is 4 mm or less, and when the button is not pushed and all of the buttons already sink in the inside of housing 1 mm or more from the surface of housing, the button is not called a push button in this specification, either. The shortest diameter of a button is 7 mm or less, and when the button is not pushed and all of the buttons already sink in the inside of housing not less than 2 mm from the surface of housing, the button is not called a push button in this specification, either.

[0035]Carrying out "wearing" in this specification refers to equipping an ear with inner-ear type headphone, as long as there is no notice before and after that. And it is equipping an ear with the housing of inner-ear type headphone namely. The time of equipping an ear with inner-ear type headphone, as long as there is no notice before and after that is pointed out in the "case of wearing" in this specification, and at "the time of wearing", as long as there is no notice before and after that, the time of having equipped the ear with inner-ear type headphone is pointed out.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a front view showing the portion for the left ears of the inner-ear type headphone which are the examples of the invention which starts claim 1 among this inventions.

[Drawing 2]It is a right side view of the example shown in drawing 1.

[Drawing 3]It is a left side view of the example shown in drawing 1.

[Drawing 4]It is a rear elevation of the example shown in drawing 1.

[Drawing 5]It is a front view showing the portion for the left ears of another example of the invention which starts claim 1 among this inventions.

[Drawing 6]It is the figure which equipped the left ear with the inner-ear type headphone of the example shown in drawing 5.

[Drawing 7]It is a front view showing the portion for the left ears of the inner-ear type headphone which are the examples of the invention which starts claim 2 among this inventions.

[Drawing 8]It is a right side view of the example shown in drawing 7.

[Drawing 9]It is a left side view of the example shown in drawing 7.

[Drawing 10]It is a rear elevation of the example shown in drawing 7.

[Drawing 11]It is the figure which pinched the portion for the right ears of inner-ear type headphone with a drooping section with the right hand.

[Drawing 12]It is a figure when pushing the push button of the inner-ear type headphone of this invention.

[Description of Notations]

1, 11, 21, 31, and 39 Housing

2, 12, 16, 22, 32, and 40 Drooping section

3, 13, 23, and 41 The section which does not provide any push button in right and left with a length [on a drooping section] of not less than 7 mm

4, 24 push buttons (except for a drooping section)

5, 14, 25, 42 push buttons (right)

6, 15, 26, 43 push buttons (left)

7, 17, 27, 33, and 44 Code

The switch of 8 and 28 sliding types

9, 29, and 34 Protector of a diaphragm

10, 18, 19, 30, 35, and 45 Tip of a drooping section

20 Left ear

36 The right thumb

37 A right index finger

38 The right middle finger

46 Left hand

47 The left thumb

48 A left index finger

49 The left middle finger

CLAIMS

[Claim 1]Inner-ear type headphone which provided the section which does not provide any push button in right and left not less than 7 mm in length on a drooping section, and provided further a push button in which each of every at least one right and left move to each right and left independently in the bottom of it.

[Claim 2]Inner-ear type headphone which provided a push button in which each of every at least one right and left move independently in each right and left, and provided further the section which does not provide any push button in right and left not less than 7 mm in length under it on a drooping section.

[Translation done.]